



Volunteer Lake Assessment Program Individual Lake Reports

DAN HOLE POND, TUFTONBORO, NH

MORPHOMETRIC DATA

Watershed Area (Ac.):	3,788	Max. Depth (m):	40	Flushing Rate (yr ⁻¹)	0.3
Surface Area (Ac.):	408	Mean Depth (m):	17.2	P Retention Coef:	0.66
Shore Length (m):	6,100	Volume (m ³):	28,436,000	Elevation (ft):	827

TROPHIC CLASSIFICATION

Year	Trophic class
1980	OLIGOTROPHIC
1996	OLIGOTROPHIC

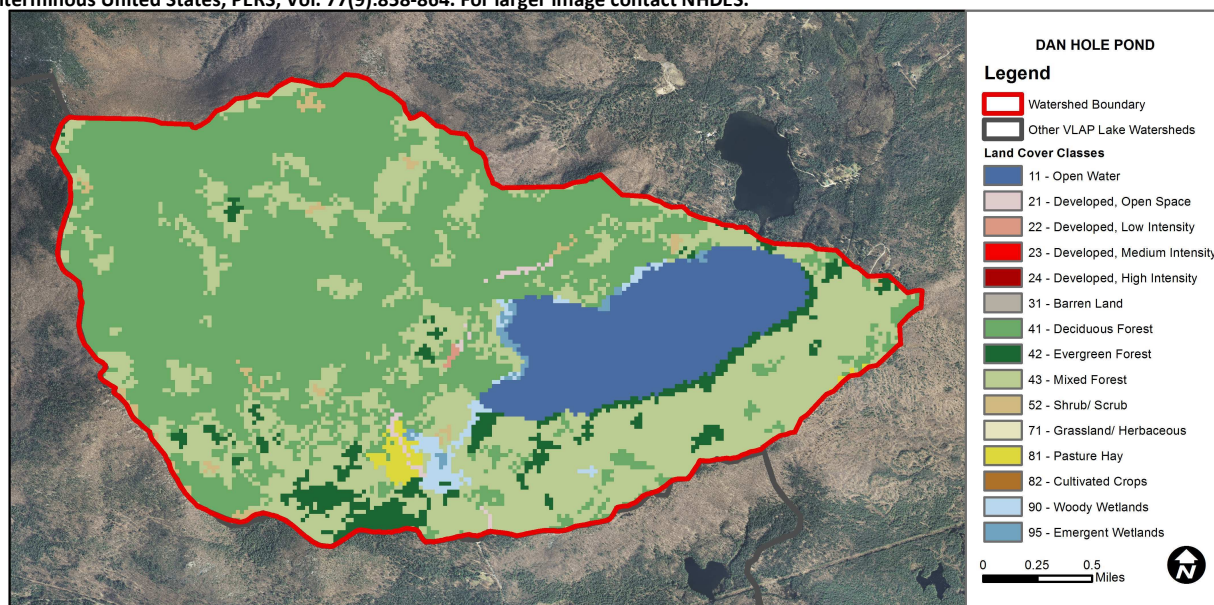
KNOWN EXOTIC SPECIES

The Waterbody Report Card tables are generated from the DRAFT 2014 305(b) report on the status of N.H. waters, and are based on data collected from 2004-2013. Detailed waterbody assessment and report card information can be found at www.des.nh.gov/organizations/divisions/water/wmb/swqa/index.htm

Designated Use	Parameter	Category	Comments
Aquatic Life	pH	Slightly Bad	>10% of samples exceed criteria by a small margin (minimum of 2 exceedances).
	Chlorophyll-a	Encouraging	The calculated median is fewer than 5 samples and is < indicator. More data needed.
Primary Contact Recreation	Escherichia coli	No Data	No data for this parameter.
	Chlorophyll-a	Encouraging	There are < 10 samples with 0 exceedances of indicator. More data needed.

WATERSHED LAND USE SUMMARY

Fry, J., Xian, G., Jin, S., Dewitz, J., Homer, C., Yang, L., Barnes, C., Herold, N., and Wickham, J., 2011. Completion of the 2006 National Land Cover Database for the Conterminous United States, PERS, Vol. 77(9):858-864. For larger image contact NHDES.





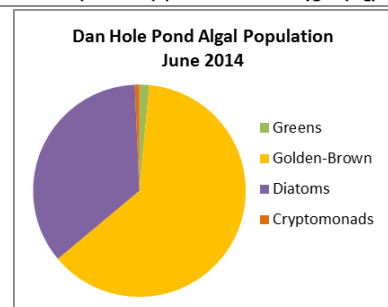
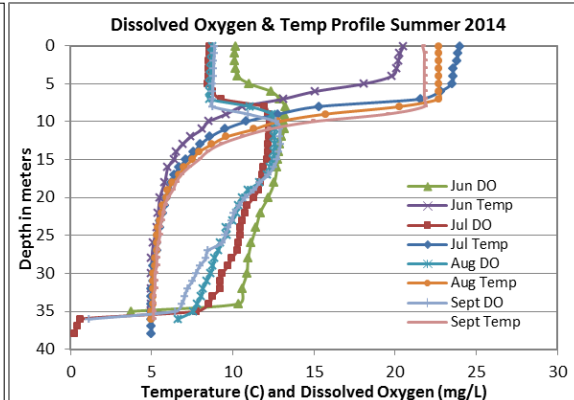
VOLUNTEER LAKE ASSESSMENT PROGRAM INDIVIDUAL LAKE REPORTS

DAN HOLE POND, TUFTONBORO

2014 DATA SUMMARY

OBSERVATIONS AND RECOMMENDATIONS (Refer to Table 1 and Historical Deep Spot Data Graphics)

- **CHLOROPHYLL-A:** Chlorophyll levels were less than 2.0 ug/L on each sampling event. This is considered low and indicative of Oligotrophic (best quality) waters. The 2014 average chlorophyll level was also much less than the state median and less than chlorophyll levels measured in 1990.
- **CONDUCTIVITY/CHLORIDE:** Conductivity and chloride levels were low and less than the state medians. Once again, these values are indicative of Oligotrophic conditions. The 2014 average epilimnetic (upper water layer) conductivity level was less than that measured in 1990.
- **TOTAL PHOSPHORUS:** Epilimnetic phosphorus level in June was slightly above average for Oligotrophic lakes, but had decreased to low levels in July. A recent rain event combined with wind and wave action may have causing mixing of epilimnetic waters which may mix in nutrients from the recent storm event. The 2014 average epilimnetic phosphorus level increased from that measured in 1990 but remained indicative of Oligotrophic conditions. Metalimnetic (middle water layer) and Hypolimnetic (lower water layer) phosphorus levels were very low on each sampling event.
- **TRANSPARENCY:** Transparency, or water clarity, remained high (good) throughout the summer. The 2014 average transparency was much better than the state median and indicative of Oligotrophic waters.
- **TURBIDITY:** Epilimnetic turbidity was slightly elevated in June and then decreased in July and August. This elevated turbidity may have been a result of a recent rain event and wind and wave action. Turbidity was low throughout the rest of the water column.
- **PH:** Epilimnetic pH was lower and less than the desirable range of 6.5–8.0 units in June, but recovered to within desirable levels in July and August. The lower June level may be a result of a recent rain event, as acid rain is prevalent in the Northeast, as well as recent winter ice and snowmelt which also is acidic. Metalimnetic (middle water layer) pH was within the desirable range, and Hypolimnetic (lower water layer) pH was approximately equal to 6.5 units. The 2014 average Epilimnetic pH was lower (more acidic) than that measured in 1990.
- **DISSOLVED OXYGEN/TEMP:** Volunteers collected monthly dissolved oxygen and temperature profiles during the summer and more frequently during the periods of spring and fall turnover. Dissolved oxygen levels typically remained high in the summer months through the majority of the water column and decreased to low levels in late summer in the deep waters closest to the lake bottom. Dissolved oxygen levels spiked monthly in the metalimnion or thermocline and that typically represents layers of algae.
- **RECOMMENDED ACTIONS:** June epilimnetic phosphorus and turbidity were slightly elevated following a recent storm event. This may indicate stormwater pollution. Stormwater can transport nutrients (phosphorus), sediments and other pollutants into nearby streams and the lake. Dirt and gravel roads are a common source of nutrient and sediment pollution into a lake. The increased frequency and intensity of storm events highlights the importance of managing stormwater so that it infiltrates into the ground prior to reaching surface waters. DES' "NH Homeowner's Guide to Stormwater Management" is a great resource. Contact the VLAP Coordinator for a copy. Continue a monthly water quality monitoring program to better assess seasonal and historical trends.



NH Water Quality Standards: Numeric criteria for specific parameters. Results exceeding criteria are considered a water quality violation.

Chloride: > 230 mg/L (chronic)

E. coli: > 88 cts/100 mL – public beach

E. coli: > 406 cts/100 mL – surface waters

Turbidity: > 10 NTU above natural level

pH: between 6.5-8.0 (unless naturally occurring)

NH Median Values: Median values for specific parameters generated from historic lake monitoring data.

Alkalinity: 4.9 mg/L

Chlorophyll-a: 4.58 mg/m³

Conductivity: 40.0 uS/cm

Chloride: 4 mg/L

Total Phosphorus: 12 ug/L

Transparency: 3.2 m

pH: 6.6

Station Name	Table 1. 2014 Average Water Quality Data for DAN HOLE POND								
	Alk. mg/l	Chlor-a ug/l	Chloride mg/l	Cond. uS/cm	Total P ug/l	Trans. m		Turb. ntu	pH
						NVS	VS		
Epilimnion	4.23	0.97	3	21.5	7	9.88	10.02	0.54	6.60
Metalimnion				21.3	3			0.47	6.81
Hypolimnion				22.0	3			0.36	6.49

HISTORICAL WATER QUALITY TREND ANALYSIS

Parameter	Trend	Explanation	Parameter	Trend	Explanation
Conductivity	N/A	Ten consecutive years of data necessary for analysis.	Chlorophyll-a	N/A	Ten consecutive years of data necessary for analysis.
pH (epilimnion)	N/A	Ten consecutive years of data necessary for analysis.	Transparency	N/A	Ten consecutive years of data necessary for analysis.
			Phosphorus (epilimnion)	N/A	Ten consecutive years of data necessary for analysis.

